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NOTES ON THE TAXONOMY OF ANANAS AND PSEUDANANAS

BY

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THERE is no substitute for careful field observation in attacking taxonomic problems. This axiom is nowhere more evident than in the problems presented by *Ananas* and *Pseudananas*. First, opinion has wavered as to the generic distinction of *Pseudananas*, its single species being proposed originally as an *Ananas*, raised to a section by Hassler and to a genus by Harms, reduced to *Ananas* by Mez, and here raised to a genus again. Similarly, the species of *Ananas* have had extremely varied treatment. Numerous slight forms of *A. comosus* have been proposed as species and the wild pineapples have been viewed differently by each succeeding author. From the evidence of herbarium specimens I had felt that *Ananas* was a monotypic genus. Copious field evidence has convinced me to the contrary.

In late 1938 and early 1939, Dr. K. F. Baker and Dr. J. L. Collins made an extensive field survey of *Ananas* and *Pseudananas* in South America for the Experiment Station of the Pineapple Producers Coöperative Association of Hawaii. During the same trip they visited several botanical institutions and evaluated names of *Ananas* current in parts of South America but not understood elsewhere. More particularly they clarified the various names in *Ananas* proposed by Bertoni in his monograph of the genus. They have kindly allowed me to present the taxonomic part of their findings.

From the extensive notes, photographs and specimens which they brought back it is evident that *Pseudananas* is a distinct genus and that *Ananas* consists of several well marked species. The data for the above as well as the evaluation of names are presented here in the form of a key and brief notes. Unless otherwise stated, measurements are from herbarium specimens.

1. Syncarp bearing at maturity a minute inconspicuous coma of reduced squamiform bracts, never producing slips at its base; plant producing elongate stolons at base; petals bearing appendages in the form of lateral folds *Pseudananas macrodontes*
1. Syncarp bearing at maturity a conspicuous coma of foliaceous bracts, frequently producing slips at its base; plant not producing stolons; petals each bearing two infundibuliform scales *ANANAS*
    2. Syncarp well over 15 cm. long at maturity with copious palatable flesh; scape stout and usually short
        3. Floral bracts conspicuous, imbricate and concealing the tops of the ovaries, strongly serrate, usually brightly colored *A. bracteatus*
        3. Floral bracts relatively inconspicuous and soon exposing the tops of the ovaries, weakly serrulate or entire; seeds lacking or very rare *A. comosus*
    2. Syncarp 15 cm. long or usually much less, with scant unpalatable flesh at maturity; scape elongate, slender
        4. Leaves stiffly erect, entire except for a long terminal spine, 35 mm. broad *A. erectifolius*
        4. Leaves recurving, serrate, not over 25 mm. broad *A. ananassoides*

Pseudananas macrodontes *(E. Morr.) Harms* in Engler & Prantl Nat. Pflanzenfam. ed. 2, 15a (1930) 153—Castellanos in Rev. Cent. Estud. Doct. Cienc. Nat. 2 (1938) 14, t. 5.

Ananas macrodontes E. Morren in Belg. Hortic. 28

(1878) 140, t. 4–5—Hassler in Ann. Conserv. Jard. Bot. Genève 20 (1919) 276, 277 with fig., 280—Castellanos in Com. Mus. Nac. Hist. Nat. Buenos Aires 2 (1925) 136—Mez in Engler Pflanzenreich IV. 32 (Heft 100) (1934) 104.

Ananas microcephalus Baker sensu Bertoni Monogr. Gen. Ananas in An. Cient. Paraguay. ser. 2, no. 4 (1919) 250.

The petal appendages in *Pseudananas* consist of a pair of thick fleshy ridges which are produced along their inner edges so that they overlap the filament of the epipetalous stamen. They are thus wholly unlike the delicate funnel-shaped appendages of *Ananas*.

As already indicated by Castellanos, Bertoni's use of *Ananas microcephalus* corresponds to *Pseudananas*. The identity of true *A.microcephalus* is wholly uncertain. Baker and Collins could find no material to support the varieties proposed by Bertoni either in his collection or in localities from which the varieties had been described. All their material indicates that *Pseudananas macrodontes* is a very uniform species.

Ananas bracteatus *(Lindl.) Schultes* in Roemer & Schultes Syst. 7 (1830) 1286.

Ananassa bracteata Lindley in Bot. Reg. 13 (1827) t. 1081.

Ananas Sagenaria (Arr. da Cam.) Schultes sensu Mez in Engler Pflanzenreich IV. 32 (Heft 100) (1934) 104, haud *Bromelia Sagenaria* Arruda da Camara Diss. (1810) 13.

The description of *Bromelia Sagenaria* shows certain similarities with *Ananas bracteatus*, but it shows also differences that it is practically impossible to explain away. For instance the floral bracts are given as about twice as large as they are ever known to occur in *Ananas* *bracteatus*. Consequently it seems better to keep the later name, about which there is no uncertainty and relegate *Bromelia Sagenaria* to the dubious list.

Ananas bracteatus shows three well marked varieties as follows:

Ananas bracteatus *(Lindl.) Schultes* var. **typicus** *L.B.Smith.*

Ananas bracteatus (Lindl.) Schultes var. *rudis* Bertoni Monogr. Gen. Ananas in An. Cient. Paraguay. ser. 2, no. 4 (1919) 256, excluding synonymy.

Laminis foliorum omnino viridibus; bracteis florigeris pulchre roseis.

This typical variety with its uniformly green leaves and brightly colored bracts is doubtless the progenitor of the two others. According to Baker and Collins, its seeds are so few that it is cultivated for its fruit in some regions.

Ananas bracteatus *(Lindl.) Schultes* var. **albus** *L.B.Smith var. nov.*

Laminis foliorum omnino viridibus; bracteis florigeris omnino albis vel flavo-virentibus.

BRAZIL, State of São Paulo, District of Itapecirica. Paiól do Meio in woods along canal. May 6, 1936. *Hoehne & Gehrt in Herb. Inst. Biol. São Paulo 35297.* (TYPE in Gray Herb.)

The seeds are extremely numerous in the white-bracted variety, so that it is of little use in cultivation according to Baker and Collins. The color of the bracts is due to a lack of anthocyanin. The leaves are a normal green as in the typical variety.

Ananas bracteatus *(Lindl.) Schultes* var. **tricolor** *(Bertoni) L.B.Smith comb. nov.*

Ananas bracteatus (Lindl.) Schultes var. *rudis* Bertoni subvar. *tricolor* Bertoni Monogr. Gen. Ananas in An. Cient. Paraguay. ser. 2, no. 4 (1919) 258.

Foliorum laminis late albo-marginatis, spinis et saepe margine ipso pulchre roseis; bracteis florigeris albis vel pallide roseis, saepe roseo-marginatis.

The beautiful variegation of the leaves in this variety is due to a lack of chlorophyll near the margin.

Ananas comosus *(L.) Merrill* Interpr. Rumph. Amb. (1917) 133.

Bromelia comosa Linnaeus Herb. Amboin. (1754) 21.

Bromelia Ananas Linnaeus Sp. Pl. (1753) 285.

Ananassa sativa Lindley in Bot. Reg. 13 (1827) sub t. 1068.

Ananas sativus (Lindl.) Schultes in Roemer & Schultes Syst. 7 (1830) 1283.

Ananas Ananas (L.) Voss in Vilm. Blumeng. ed. 3, 1 (1895) 964.

Ananas bracteatus (Lindl.) Schultes var. *hondurensis* Bertoni Monogr. Gen. Ananas in An. Cient. Paraguay. ser. 2, no. 4 (1919) 258; and var. *paraguariensis* Bertoni op. cit. p. 259.

The earliest name for the cultivated pineapple is *Bromelia Ananas* L., but as the International Rules of Botanical Nomenclature do not allow exact repetition of the generic name by the specific, the next earliest name must be used. In this way we have *Ananas comosus* (L.) Merrill based on *Bromelia comosa* L. *Ananas sativus* has been much in use but is antedated by the claim of *A. comosus* and so must lapse into synonymy.

No attempt is made here to classify the numerous subdivisions of the species, but in line with the policy of evaluating Bertoni's names, two of his so called varieties of *A. bracteatus* are reduced to the synonymy of this species. *A. bracteatus* var. *hondurensis* is reduced to *A. comosus* because it is obvious from the description that it was based on a well known form of the cultivated pineapple. Baker and Collins were unable to find any material of this variety in Bertoni's collection. *A. bracteatus* var. *paraguariensis* they found still growing in his garden and obtained specimens which are beyond doubt *A. comosus*.

Ananas erectifolius *L. B. Smith sp. nov.*

Ananas sp. Ducke in Arch. Jard. Bot. Rio de Janeiro 5 (1930) 81.

Foliis rosulatis, strictis, erectis, 1 m. vel ultra longis, laminis ca. 35 mm. latis, apice involuto pungenti excepto omnino inermibus, supra glabris, subtus minute albido-lepidotis; scapo erecto, elongato, gracili, vivo ad 15 mm. diametro; scapi bracteis foliaceis, erectis; syncarpio subcylindrico, vivo ad 12 cm. longo et 5 cm. diametro, basi apiceque ramulis brevibus foliaceis proferente, coma magna; bracteis florigeris parvis, inermibus; sepalis late ovatis, obtusis, 7 mm. longis; petalis 17 mm. longis; seminibus perpaucis vel nullis.

BRAZIL, cultivated in Estancia Rio Pedras, Campinas, State of São Paulo in 1938 from material brought from the Amazon Basin by Dr. Adolpho Ducke, *Baker & Collins 9* (TYPE in Gray Herb.); State of Pará, Santarém, 1932, *Roy Carr s. n.* (Field Museum, No. 659515, 659516, 659517).

The stiff upright entire leaves of this species immediately distinguish it from all others. They yield a good fiber for which the plant has been cultivated. The fruit, although practically seedless, is so poor as to be negligible. The species grows abundantly in low open country on the point west of the mouth of the Rio Tapajoz. It is also said to be common in northwestern Maranhão between the Rio Maracassumé and the Rio Tury-Assú.

Ananas ananassoides *(Bak.) L. B. Smith comb. nov.*

Acanthostachys ananassoides Baker Handb. Bromel. (1889) 25.

Ananas microstachys Lindman in Svensk. Akad. Handl. 24, no. 8 (1891) 39, t. 7, figs. 20-23.

Ananas sativus (Lindl.) Schultes var. *microstachys* (Lindm.) Mez in Martius Fl. Bras. 3, pt. 3 (1892) 294.

Ananas guaraniticus Bertoni Monogr. Gen. Ananas in An. Cient. Paraguay. ser. 2, no. 4 (1919) 274.

Ananas comosus (L.) Merrill var. *microstachys* (Lindm.) L. B. Smith in Contrib. Gray Herb. 104 (1934) 72.

The name *ananassoides* is the earliest name in the specific category to be used for this pineapple and since it is not an exact repetition of the generic name it must stand according to the International Rules of Botanical Nomenclature.

Ananas ananassoides *(Bak.) L. B. Smith* var. **typicus** *L. B. Smith.*

Foliorum laminis recurvatis, elongatis, sed basi raro ultra 25 mm. latis, spinoso-serratis; scapo elongato, gracili, sub syncarpium fragili; syncarpio multifloro, ad 15 cm. longo sed plerumque minore; coma plerumque mediocri sed umbraticola majore; seminibus multis.

Typical *Ananas ananassoides* is characterized by its long narrow recurving leaves and small slender seedy syncarp which easily breaks off from the summit of the scape. It is a plant of very poor soils and is usually found in low open scrub or brushland.

Ananas ananassoides *(Bak.) L. B. Smith* var. **nanus** *L. B. Smith var. nov.*

Foliorum laminis recurvatis, elongatis, angustis;

scapo erecto, gracili, debili, sed apice non fragili; syncarpio paucifloro, parvo, maturitate haud ultra 4 cm. longo; maturitate coma magna in speciminibus visis; seminibus perpaucis vel nullis; sepalis 6 mm. longis; petalis 15 mm. longis.

Brazil, State of Parahyba, cultivated as a pot plant, ornamental, João Pessoa, March 1, 1939, *Baker & Collins s.n.* (Type in Gray Herb.); State of Pernambuco, cultivated ornamental, Recife, March 4, 1939, *Baker & Collins s.n.* (Gray Herb.); State of Pará, Tapary on the Rio Tapajoz, May 1929, *Dahlgren & Sella 28* (Field Museum).

Natives told of seeing this variety in the wild state in the vicinity of Recife, but Baker and Collins were unable to verify the statement. The variety is cultivated in Rio de Janeiro and Bahia as well as in the places indicated above.

The scape is so weak that in cultivation it has to be supported, indicating that its natural habitat is probably fairly dense brushland. The very small few-flowered and nearly or quite seedless syncarp distinguish this variety from the typical one. Also, perhaps partly because of its smaller size, it shows no tendency to break at the junction of the scape and the syncarp. The coma is relatively large in the only known mature specimens, but this may be due to living in the shade because the coma of typical *A. ananassoides* is much larger in shaded plants.

EXPLANATION OF THE ILLUSTRATIONS

Plate I. **Ananas erectifolius** *L.B.Smith.* 1, rosette about one quarter natural size. 2, inflorescence, about one quarter natural size. Drawn from K.F.Baker's photographs of the plants cultivated in Campinas.

Plate II. **Ananas ananassoides** *(Bak.) L.B.Smith.* 1, plant cultivated in Hort. Bertoni under the name of *Ananas guaraniticus.* Drawn from a photograph by K.F.Baker. 2, syncarp of same plant about one third natural size. 3, section of leaf, natural size, from Baker & Collins collection from near Nioac, Matto Grosso. 4, sepal, natural size from Baker & Collins material in formalin from Mogy-Mirim, São Paulo. 5, petal of same, natural size.

Plate III. **Ananas ananassoides** *(Bak.) L.B.Smith* var. **nanus** *L.B. Smith.* Upper scape and inflorescence of type, one half natural size.

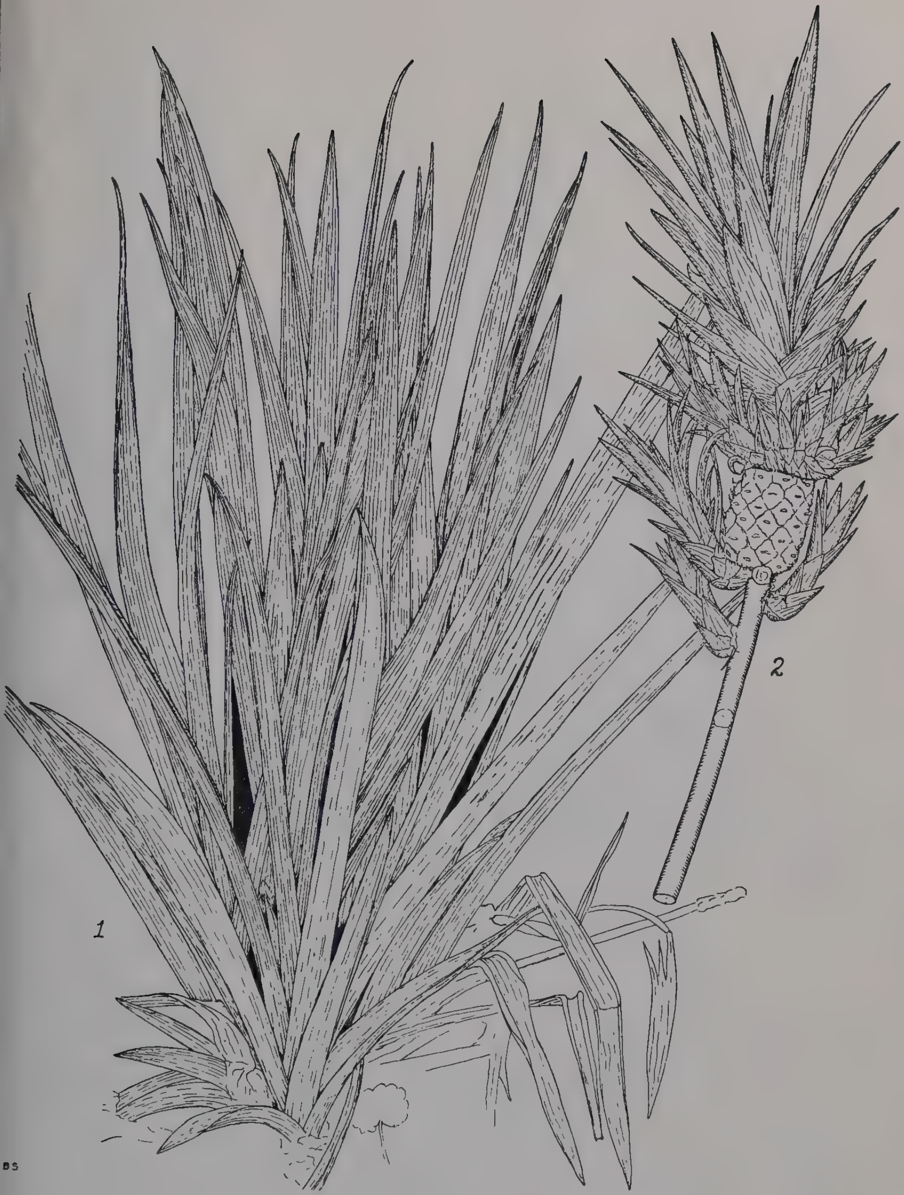

PLATE I

ANANAS ERECTIFOLIUS *L. B. Smith*

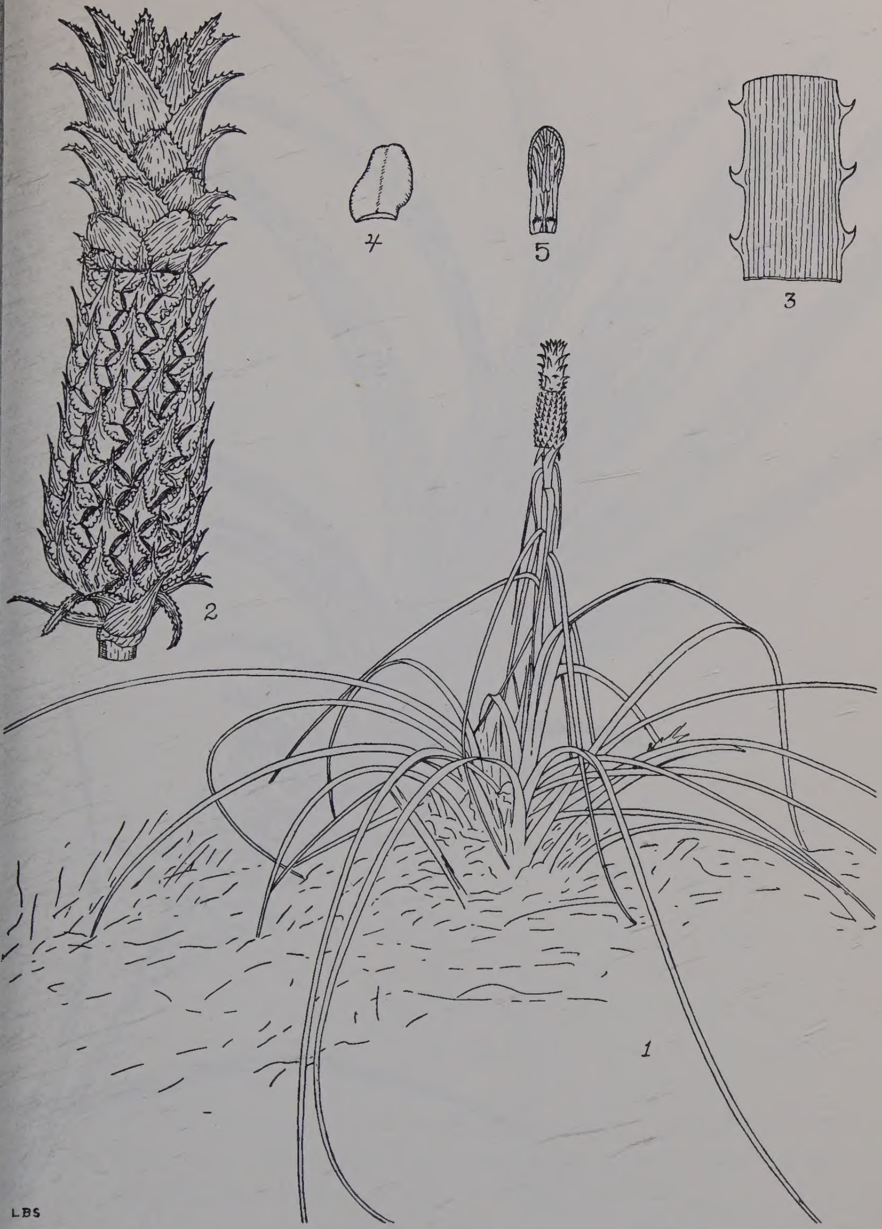

Plate II

Ananas ananassoides *(Bak.) L. B. Smith*

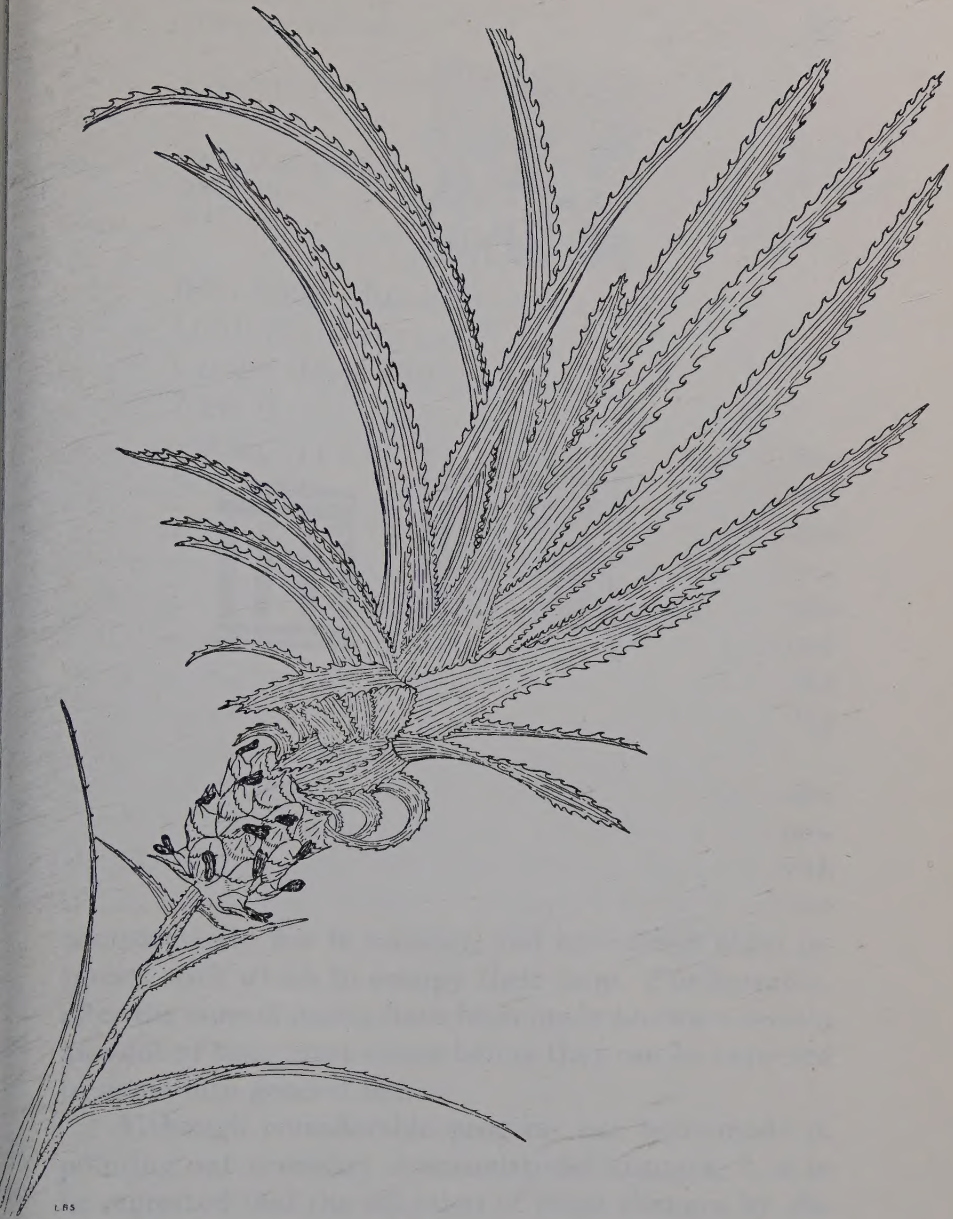

PLATE III

ANANAS ANANASSOIDES *(Bak.) L. B. Smith*
var. NANUS *L. B. Smith*

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